

IN THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the application:

1. (Canceled).
2. (Currently Amended) The method of claim 1, further comprising:
ciphering the traffic between the mobile station and the second mobile communication network using the second cipher key if the mobile station is handed over from the first mobile communication network to the second mobile communication network during an active connection.
3. (Currently Amended) A method of arranging data protection in a telecommunication system including a first mobile communication network, a second mobile communication network, and a mobile station supporting both of the mobile communication networks, the ~~The method of claim 1,~~ further comprising:
ciphering traffic between the mobile station and the first mobile communication network using a first cipher key;
calculating a second cipher key to be used for ciphering traffic between the mobile station and the second mobile communication network in the first mobile communication network when the mobile station operates in the first mobile communication network;
transmitting information necessary for calculating the second cipher key from the first mobile communication network to the mobile station when the mobile station operates in the first mobile communication network;
calculating the second cipher key at the mobile station to be used for ciphering traffic between the mobile station and the second mobile communication network;
transmitting the second cipher key from the first mobile communication network to the second mobile communication network;
transmitting the second cipher key calculated at the mobile station to a ciphering module of the mobile station in response to a request from the first mobile communication network to handover to the second mobile communication network; and
ciphering traffic between the mobile station and the second mobile communication network using the second cipher key after handover is complete.

4. (Currently Amended) The method of claim 1 3, further comprising:
determining, in the first mobile communication network, whether the mobile station supports the second mobile communication network;
calculating the second cipher key in the first mobile communication network in response to a determination that the mobile station supports the second mobile communication network;
transmitting a request for calculation of the second cipher key from the first mobile communication network to the mobile station; and
calculating the second cipher key at the mobile station in response to the request for calculation of the second cipher key.

5. (Previously Presented) The method of claim 4, wherein the second cipher key is calculated in the first mobile communication network when an identifier transmitted by the mobile station indicates that the mobile station supports the second mobile communication network.

6. (Currently Amended) The method of claim 1 3, further comprising:
calculating the second cipher key at a first element in the first mobile communication network in response to a request from a second element of the first mobile communication network, the second element including identifiers transmitted by the mobile station, and
transmitting the second cipher key from the first element to the second element.

7. (Currently Amended) The method of claim 1 3, wherein the mobile station includes a USIM application for the first mobile communication network and a subscriber identification SIM application for the second mobile communication network, the method further comprising:
transmitting information necessary to calculate the second cipher key received by the mobile station to the SIM application.

8. (Previously Presented) The method of claim 7, further comprising:
calculating the second cipher key in the first mobile communication network in connection with calculating an authentication response for the first mobile communication network and the first cipher key;

transmitting the information necessary for calculating the first cipher key and the second cipher key, such as a random-number parameter, from the first mobile communication network to the mobile station;

transmitting the necessary information for calculating the first and second cipher keys from the mobile station to the subscriber identification applications for the first and the second mobile communication networks;

calculating the second cipher key in the subscriber identification application for the second mobile communication network and calculating the authentication response in the subscriber identification application for the first mobile communication network;

transmitting the authentication response for the first mobile communication network from the mobile station to the first mobile communication network; and

acknowledging the authentication of the mobile station in the second mobile communication network in response to the first mobile communication network accepting the authentication response transmitted by the mobile station.

9. (Previously Presented) The method of claim 7, further comprising:

determining a random-number parameter and calculating an authentication response for the second mobile communication network in connection with calculating the second cipher key in the first mobile communication network;

transmitting a request for calculating an authentication response for the second mobile communication network to the mobile station;

transmitting the information necessary for calculating the second cipher key from the mobile station to the subscriber identification SIM application;

calculating the authentication response for the second mobile communication network in connection with calculating said second cipher key using the subscriber identification SIM application module;

transmitting the authentication response for the second mobile communication network that is calculated at the mobile station to the first mobile communication network; and

checking said authentication response according to the second mobile communication network transmitted by the mobile station in the first mobile communication network.

10. (Currently Amended) The method of claim 1 3, wherein the second cipher key is calculated by shortening the first cipher key in the first mobile communication

network, and at the mobile station, before a handover to the second mobile communication network takes place.

11. (Currently Amended) The method of claim ~~1~~ 3, wherein the second cipher key is calculated in response to a decision in the first mobile communication network to carry out a handover to the second mobile communication network.

12. (Canceled).

13. (Currently Amended) The telecommunication system of claim ~~12~~ 14, wherein the mobile station and the second mobile communication network are configured to cipher traffic between the mobile station and the second mobile communication network using the second cipher key if the mobile station is handed over from the first mobile communication network to the second mobile communication network during an active connection.

14. (Currently Amended) ~~The~~ A telecommunication system ~~of claim 12, wherein~~ comprising:

a first mobile communication network configured to use a first cipher key for ciphering traffic between a mobile station and the first mobile communication network;

a second mobile communication network configured to use a second cipher key for ciphering traffic between a mobile station and the second mobile communication network;
and

a mobile station configured to support said different first and second mobile communication networks,

wherein the first mobile communication network is configured to calculate the second cipher key when the mobile station operates in the first mobile communication network, and the first mobile communication network is configured to transmit information necessary for calculating the second cipher key from the first mobile communication network to the mobile station when the mobile station operates in the first mobile communication network, and the mobile station is configured to calculate said second cipher key,

wherein the first mobile communication network is configured to transmit the second cipher key to the second mobile communication network before a handover to the second mobile communication network,

wherein the mobile station is configured to transmit said second cipher key calculated at the mobile station to a ciphering ~~means~~ module of the mobile station in response to the first mobile communication network transmitting a request to the mobile station for handover to the second mobile communication network, and

wherein the mobile station and the second mobile communication network are configured to cipher traffic after the handover using the second cipher key.

15. (Currently Amended) The telecommunication system of claim ~~12~~ 14, wherein the first mobile communication network is configured to determine whether the mobile station supports the second mobile communication network based on an identifier transmitted by the mobile station,

the first mobile communication network is configured to calculate the second cipher key in response to a determination that the mobile station supports the second mobile communication network,

the first mobile communication network is configured to transmit a request to the mobile station for calculation of the second cipher key, and

the mobile station is configured to calculate said second cipher key based on the request from the first mobile communication network.

16. (Currently Amended) The telecommunication system of claim ~~12~~ 14, further comprising:

a first element of the first mobile communication network configured to receive the request for calculation of the second cipher key from a second element of the first mobile communication network configured to store identifiers transmitted by the mobile station of the first mobile communication network,

wherein the first element is configured to calculate the second cipher key in response to the request from the second element, and the first element is configured to transmit the calculated second cipher key to the second element.

17. (Currently Amended) The telecommunication system of ~~claim 12~~ claim 14, wherein

the first mobile communication network is configured to calculate the second cipher key in connection with calculation of an authentication response associated with the first mobile communication network and the first cipher key,

the first mobile communication network is configured to transmit to the mobile station information necessary for calculating the first cipher key and the second cipher key, such as a random-number parameter,

the mobile station includes a USIM identification application for the first mobile communication network and a SIM identification application for the second mobile communication network,

the mobile station is configured to transmit the information necessary for calculating the first cipher key and the second cipher key to the identification applications for the first and the second mobile communication networks,

the SIM identification application is configured to calculate the second cipher key, the USIM identification application is configured to calculate the authentication response for the first mobile communication network, and

the mobile station is configured to transmit the authentication response for the first mobile communication network to the first mobile communication network.

18. (Currently Amended) The telecommunication system of ~~claim 12~~ claim 14, wherein

the first mobile communication network is configured to determine a random-number parameter for the second mobile communication network and to calculate the authentication response in connection with calculating the second cipher key,

the first mobile communication network is configured to transmit a request to the mobile station to calculate an authentication response for the second mobile communication network,

the mobile station includes a USIM identification application for the first mobile communication network and a SIM identification application for the second mobile communication network,

the mobile station is configured to transmit the information necessary to calculate the second cipher key to the SIM identification application for the second mobile communication network,

the SIM identification application for the second mobile communication network is configured to calculate the second cipher key and the authentication response for the second mobile communication network substantially simultaneously,

the mobile station is configured to transmit the authentication response for the second mobile communication network to the first mobile communication network, and

the first mobile communication network is configured to check the authentication response for the second mobile communication network.

19. (Currently Amended) A network part in a first mobile communication network configured to use a first cipher key for ciphering traffic between the first mobile communication network and ~~the~~ a mobile station, wherein the network part is configured to calculate, as the mobile station operates in the first mobile network, a second cipher key to be used for ciphering in a second mobile communication network,

the network part is further configured to transmit information necessary for calculating the second cipher key from the first mobile communication network to the mobile station,

~~and wherein the network part is also further configured to transmit the second cipher key to the second mobile communication network~~ to be used for cipher traffic after the handover using the second cipher key, and

the network part is configured to transmit a request to the mobile station for handover to the second mobile communication network.

20. (Currently Amended) A mobile station configured to support a first mobile communication network and a second mobile communication network, wherein

the mobile station is configured to cipher traffic between the mobile station and the first mobile communication network using a first cipher key when the mobile station operates in the first mobile communication network,

the mobile station is ~~further~~ configured to receive from the first mobile communication network information necessary for calculating a second cipher key to be used for ciphering traffic between the mobile station and the second mobile communication network,

the mobile station is ~~further~~ configured to calculate the second cipher key,
the mobile station is configured to transmit the second cipher key calculated at the mobile station to a ciphering module of the mobile station in response to the first mobile communication network transmitting a request to the mobile station for handover to the second mobile communication network, and

the mobile station is ~~also further~~ configured to cipher traffic between the mobile station and the second mobile communication network using the second cipher key if the

mobile station is handed over from the first mobile communication network to the second mobile communication network.